AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A computer-implemented method to solve a business issue related to cross-selling opportunities, comprising the steps of:

using a computer to retrieve cross-selling relationships that associate purchases of a first set of items with purchases of a second set of items;

said cross-selling relationships being associated with a cross-selling statistic, wherein the cross-selling statistic is indicative of potential for the purchase of the second set of items based upon the purchase of the first set of items; and

using a computer to determine a cross-selling opportunities metric that solves the business issue,

wherein the cross-selling opportunities metric is determined for at least one cross-selling relationship by at least substantially optimizing an objective function with respect to constraints and to the cross-selling statistic, wherein at least one of the constraints is based upon the business issue;

wherein the objective function is solved for resource allocation related to the purchase of the second set of items using linear programming optimization.

2. CANCELLED

3. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein the objective function is solved for personnel effort resource allocation related to the purchase of the second set of items using linear programming optimization.

4. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein one of the constraints is based upon target effort for an item.

5. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein one of the constraints is directed to size of markets involving the first and second sets of items.

6. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein one of the constraints is directed to size of markets involving the first and second sets of items such that resource allocation is biased towards markets that are larger than other markets.

7. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein one of the constraints constrains the objective function to generate resource allocations that are substantially equal for all items whose resource allocations are determined by the optimization function to be greater than zero.

8. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein one of the constraints constrains the objective function to maximize the return on equity.

9. (CURRENTLY AMENDED) The method of claim 1 ~~claim 2~~ wherein the cross-selling opportunities metric includes an effort cross-selling opportunities metric which solves the business issue, wherein the business issue is directed to the resource allocation that maximizes return on investment related to the purchasing of the second set of items.

10. (ORIGINAL) The method of claim 1 wherein the cross-selling relationships include association rules, wherein the association rules have left-hand-side items and right-hand-side items.

11. (ORIGINAL) The method of claim 10 wherein the cross-selling statistic is a lift cross-selling statistic.

12. (ORIGINAL) The method of claim 11 wherein the lift cross-selling statistic is ratio of the probability of having the right-hand-side items given that a customer has the left-hand-side items, over the probability that the customer has the right-hand-side items.

13. (ORIGINAL) The method of claim 11 wherein the cross-selling statistic further includes an expected confidence cross-selling statistic that indicates the frequency with which the right-hand-side items occurs in the overall population of the first and second set of items.

14. (ORIGINAL) The method of claim 1 wherein the first and second set of items include products to be purchased by customers.

15. (ORIGINAL) The method of claim 1 wherein the first and second set of items include services to be purchased by customers.

16. (ORIGINAL) The method of claim 1 wherein the cross-selling relationships and cross-selling statistic are generated from a data miner based upon historical data on sales related to the first and second sets of items.

17. (CURRENTLY AMENDED) A computer-implemented system for solving a business issue related to resource allocation involved in cross-selling opportunities, comprising:

an association rules data store to store cross-selling relationships that associate the purchase of a first set of items with the purchase of a second set of items;

said cross-selling relationships being associated with a cross-selling statistic, wherein the cross-selling statistic is indicative of the potential for purchase of the second set of items based upon the purchase of the first set of items; and

an optimization module connected to the association rules data store and containing at least one constraint related to the business issue,

wherein the optimization module determines resource allocation for a business operation related to the purchase of the second set of items, said determining being performed based upon the cross-selling relationships, the cross-selling statistic, and the business issue constraint;

wherein the optimization module is a linear programming module that includes an objective function, wherein the objective function is solved for the resource allocation related to the purchase of the second set of items.

18. CANCELLED

19. (ORIGINAL) The system of claim 17 wherein one of the constraints is based upon target effort for an item.

20. (ORIGINAL) The system of claim 17 wherein one of the constraints is directed to size of markets involving the first and second sets of items.

21. (ORIGINAL) The system of claim 17 wherein one of the constraints is directed to size of markets involving the first and second sets of items such that resource allocation is biased towards markets that are larger than other markets.

22. (CURRENTLY AMENDED) The system of <u>claim 17</u> ~~claim 18~~ wherein one of the constraints constrains the objective function to generate resource allocations that are substantially equal for all items whose resource allocations are determined by the optimization function to be greater than zero.

23. (CURRENTLY AMENDED) The system of <u>claim 17</u> ~~claim 18~~ wherein one of the constraints constrains the objective function to maximize the return on equity.

24. (ORIGINAL) The system of claim 17 wherein the cross-selling opportunities metric includes an effort cross-selling opportunities metric which solves the business issue, wherein the business issue is directed to the resource allocation that maximizes return on investment related to the purchasing of the second set of items.

25. (ORIGINAL) The system of claim 17 wherein the cross-selling relationships include association rules, wherein the association rules have left-hand-side items and right-hand-side items.

26. (ORIGINAL) The system of claim 25 wherein the cross-selling statistic is a lift cross-selling statistic.

27. (ORIGINAL) The system of claim 26 wherein the lift cross-selling statistic is ratio of the probability of having the right-hand-side items given that a customer has the left-hand-side items, over the probability that the customer has the right-hand-side items.

28. (ORIGINAL) The system of claim 26 wherein the cross-selling statistic is an expected confidence cross-selling statistic that indicates the frequency with which the right-hand-side items occurs in the overall population of the first and second set of items.

29. (ORIGINAL) The system of claim 17 wherein the first and second set of items include products to be purchased by customers.

30. (ORIGINAL) The system of claim 17 wherein the first and second set of items include services to be purchased by customers.

31. (PREVIOUSLY PRESENTED) The system of claim 17 wherein the cross-selling relationships and cross-selling statistic are generated from a data miner based upon historical data on sales related to the first and second sets of items.

32. (CURRENTLY AMENDED) A computer-implemented cross-selling analysis system, comprising:

computer data storage means for storing association rules that associate purchases of a first set of items with purchases of a second set of items;

said association rules being associated with a lift cross-selling statistic, said lift cross-selling statistic being indicative of potential for the purchase of the second set of items based upon the purchase of the first set of items;

constraints storage means for storing constraints related to achieving a predetermined business goal; and

optimization means connected to the computer data storage and to the constraints storage means,

said optimization means containing an objective function that determines the amount of effort to be used in the selling of the items by substantially maximizing the predetermined business goal subject to the constraints, the association rules, and the lift cross-selling statistic;

wherein the objective function is solved for resource allocation related to the purchase of the second set of items using linear programming optimization.